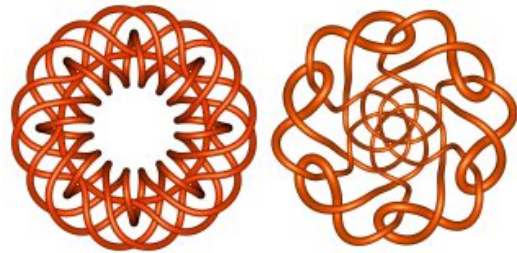


Instructor

Professor Shelly Harvey
Herman Brown 446
Phone: x3659
shelly at rice dot edu

Course Information

Class meets: MWF 10am -- 10:50am in HB 453
Office Hours: Mon 11am-12pm, Tues 1-2pm, Thurs 1-2pm
Recitation: M 5-6pm in HB 227
Webpage: <http://math.rice.edu/~shelly/304s14/>
Homework and reading assignments will be posted on [OWL-Space](#)
Teaching Assistant: Katherine Poulsen



Textbook

[Knot Theory](#) by Charles Livingston (required)

Other useful references in Knot Theory (not required)

[The Knot Book](#) by Colin Adams (book, includes a lot of open problems)

[Knot Notes](#) by Justin Roberts (notes found at <http://math.ucsd.edu/~justin/Papers/knotes.pdf>, more advanced than Livingston or Adams)

Course Description

Knot theory is the study of smooth simple closed curves in 3-dimensional space. Knot theory is a large and active research area of mathematics that employs advanced techniques of abstract algebra and geometry. It is an essential tool in the study of 3 and 4-dimensional manifolds. The purpose of this course is to learn the basics of knot theory. We will learn how to formalize knots and learn techniques to distinguish them from one another. We will also discuss open problems in knot theory. Here are some of the topics that we will discuss: Reidemeister moves, mod-p colorings, knot determinants, knot polynomials, Seifert surfaces, Euler characteristic, knot groups, and untying knots in 4-dimensions. The course will be mostly self-contained and will have an emphasis on careful proof writing.

Prerequisite

The prerequisite is a course in linear algebra or a course that discusses matrices and some of their properties: Math 221, Math 354, Math 355, CAAM 335, or equivalent. In particular, one should be familiar with the rank, nullity, determinant, and eigenvalues of a matrix. If you haven't taken the necessary prerequisite but would still like to take the course, please talk to me.

Homework

Homeworks will be assigned every **Wednesday** and will be due the following **Wednesday** in class (or before class) unless otherwise stated; they will be posted on [OWL-Space](#). Homework solutions must be legible. You must show all of your work for full credit. Late homework will receive at most 1/2 credit. Your homework grade will consist of two scores: one for correctness and one for exposition.

Exams

There will be one midterm (the date to be determined) and a final exam. Both exams will be take home exams. Good mathematical exposition will be counted on both exams.

Grades

Your grade in the class will be based on the following weights:

Homework:	
Correctness	35%
Exposition	5%
Midterm:	25%
Final Exam:	35%

Disability Support

Any student with a documented disability needing academic adjustments or accommodations is requested to speak with me during the first week of class. All discussions will remain confidential. Students with disabilities also need to contact the Disability Support Services Office in the Ley Student Center.
